NE Science - Draft Public Blueprint Updated 12-18-19

Nebraska's College and Career Ready Standards for Science (NCCRS-S)¹ are organized by grade level for Grades K–8 and by grade span in high school. K–5 standards are organized to reflect the developmental nature of learning for elementary students and attend to the learning progressions that build foundational understandings of science. By the time students reach middle school (Grades 6–8), they build on this foundation to develop more sophisticated understandings of science concepts through high school.

Appendix A provides the topic progression for the NCCRS-S, and Appendix B presents a sample performance task model and explains how they are developed. Examples of progressions for the Science and Engineering Practices and Crosscutting Concepts as represented in Appendices F and G, respectively, of the Next Generation Science Standards (NGSS; NGSS Lead States, 2013)² demonstrate the growth in complexity and sophistication across the grades.

The NSCAS-General Summative Science assessment administered to students in Grades 5 & 8 will transition to the NCCRS-S in 2020–2021.³ In preparation for the transition, this document provides an expectation of the frequency of the Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs) from the NCCRS-S. Each element from the DCIs, SEPs, and CCCs is assigned a frequency (i.e., frequent, infrequent, rare) that indicates how often the element will be assessed, as shown in the tables below.

The NSCAS Science assessment is formed around tasks, which are collections of prompts focused on a single phenomenon or problem. Tasks may use the DCIs, SEPs, and CCCs in any combination. Frequent elements will most likely be assessed every year, infrequent elements will be presented at least every two years, and rare elements will be presented at least every three years. Any elements may be tested in any year. The frequency level of elements in the assessment is based on the frequency these concepts can be found in the grade-level NCCRS-S.

¹ Nebraska Department of Education (NDE). (2017). *Nebraska's college and career ready standards for science*. Retrieved from https://cdn.education.ne.gov/wp-content/uploads/2017/10/Nebraska_Science_Standards_Final_10_23.pdf.

² NGSS Lead States. (2013). *Next Generation Science Standards: For states, by states*. Washington, DC: The National Academic Press. Retrieved from https://www.nextgenscience.org/search-standards. Next Generation Science Standards is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

³ From the NDE website: https://www.education.ne.gov/assessment/nscas-science-assessment-transition/

Grade 5
Gather, Analyze, and Communicate evidence about...

Frequency	Topics (from which DCIs will be selected)	SEPs	CCCs • Scale, Proportion, & Quantity • Systems & System Models • Cause Effect	
Frequent	 Structure & Properties of Matter Matter and Energy in Organisms and Ecosystems Space Systems: Earth's Stars & Solar System Earth's Systems Engineering Design (define problems, develop possible solutions, and improve designs) 	 Developing and Using Models Using Mathematics and Computational Thinking Engaging in Argument from Evidence 		
Infrequent	N/A	Defining ProblemsPlanning and Carrying Out Investigations	 Energy and Matter Patterns	
Rare	N/A	 Asking Questions Analyzing and Interpreting Data Constructing Explanations Designing Solutions Obtaining, Evaluating & Communicating Information 	Structure and FunctionStability and Change	

Grade 8
Gather, Analyze, and Communicate evidence about...

Frequency	Topics (from which DCIs will be	SEPs	CCCs			
	selected)					
Frequent	 Forces & Interactions Waves & Electromagnetic Radiation Energy Heredity: Inheritance & Variation of Traits Natural Selection and Adaptations Space Systems History of the Earth Engineering Design (define problems, develop possible solutions, and improve designs) 	 Developing and Using Models Analyzing and Interpreting Data Using Mathematics and Computational Thinking Constructing Explanations 	 Patterns Cause and Effect Systems and System Models 			
Infrequent	N/A	 Planning and Carrying Out Investigations Obtaining, Evaluating & Communicating Information 	Scale, Proportion, & QuantityStructure and Function			
Rare	N/A	 Asking Questions Defining Problems Designing Solutions Energy and Ma Stability and Change 				

Appendix A: Topic Progression

The topic progression below shows which topics are included at each grade level in the NCCRS-S and reflect the developmental nature of learning for students and attend to the learning progressions that build foundational understandings of science. The assessments for grade 5 & 8 are designed to engage students in novel phenomena and allows students to explore scientific thinking in new situations. Any SEP and CCC may be flexibly used to make sense of grade level topics.

Topic \ Grade	K	1	2	3	4	5	6	7	8	HS
1 Forces &	SC.K.1			SC.3.1					SC.8.1	SC.HS.1
Interactions										
2 Waves & Electro-		SC.1.2			SC.4.2				SC.8.2	SC.HS.2
magnetic										
Radiation										
3 Structure &			SC.2.3			SC.5.3		SC.7.3		SC.HS.3
Properties of Matter										
4 Energy					SC.4.4		SC.6.4		SC.8.4	SC.HS.4
5 Chemical								SC.7.5		SC.HS.5
Reactions										
6 Structure &		SC.1.6			SC.4.6		SC.6.6			SC.HS.6
Function										
7 Inter-dependent	SC.K.7		SC.2.7	SC.3.7				SC.7.7		SC.HS.7
Relationships in										
Ecosystems										
8 Matter & Energy						SC.5.8		SC.7.8		SC.HS.8
in Organisms &										
Ecosystems										
9 Heredity:				SC.3.9			SC.6.9		SC.8.9	SC.HS.9
Inheritance &										
Variation of Traits										
10 Biological									SC.8.10	SC.HS.10
Evolution										
11 Space Systems		SC.1.11				SC.5.11			SC.8.11	SC.HS.11
12 Weather &	SC.K.12			SC.3.12			SC.6.12			SC.HS.12
Climate										
13 Earth's Systems			SC.2.13		SC.4.13	SC.5.13	SC.6.13	SC.7.13		SC.HS.13
14 History of Earth								SC.7.14	SC.8.14	SC.HS.14
15 Sustainability										SC.HS.15

Appendix B: Performance Task Map

The performance task map below shows how tasks for the assessment are constructed and how they might fit into the 3-dimensional elements. Writers select one or more DCIs then find a phenomenon to match. Other 3-dimensional elements are then selected that will support the DCIs and the phenomenon. Finally, the task is written. The task is made up from one or more scenarios, which are non-interactive and consist of text and/or graphics. Each scenario supports one or more prompts, which are the interactive pieces that require a student response.

